

The background is a complex digital-themed collage. On the left, a hand wearing glasses is visible, with the word 'SEND' partially obscured by the lens. The background is filled with blue-tinted binary code (0s and 1s) and several dark silhouettes of aircraft in flight against a lighter, hazy sky.

# **Future Integration of CPDLC**

**2nd Integrated CNS Technologies  
Conference & Workshop  
April 29th - May 2nd, 2002  
Marriott Tyson's Corner, Virginia**

# CPDLC Build 1

## First CPDLC Message

- March 7, 2002
- FAA N49 Aircraft
- Rockwell-Collins Avionics
- ARINC VDL Mode 2
- Miami En Route Center



# The Future Vision

- **Capacity limits and delays return**
- **Future aircraft are flying today**
  - Only expected new models are the Boeing Sonic Cruiser and Airbus A380
- **Systems in development now will exist in 2015**

# Quick Look Matrix

		Major Concern						
CPDLC	CPDLC			FAA	AOC			Airspace
Integration	Message	Cockpit	Controller	Host	Host	WAIS	Procedure	Issues
Factor	Set	Integration	Integration	Integration	Integration	Integration	Development	(RVSM, DSR, ...)
<i>Project</i>								
ATOP	X	X	X	X		X	X	
ADS-B		X	X	X		X	X	
CDM	X	X		X	X	X	X	
CPDLC	X	X	X	X		X	X	
TMA				X		X	X	X
URET	X	*	X	X		X	X	X
CTAS	X	*	X	X		X	X	X
SMA	X	X	X			X		

## Legend

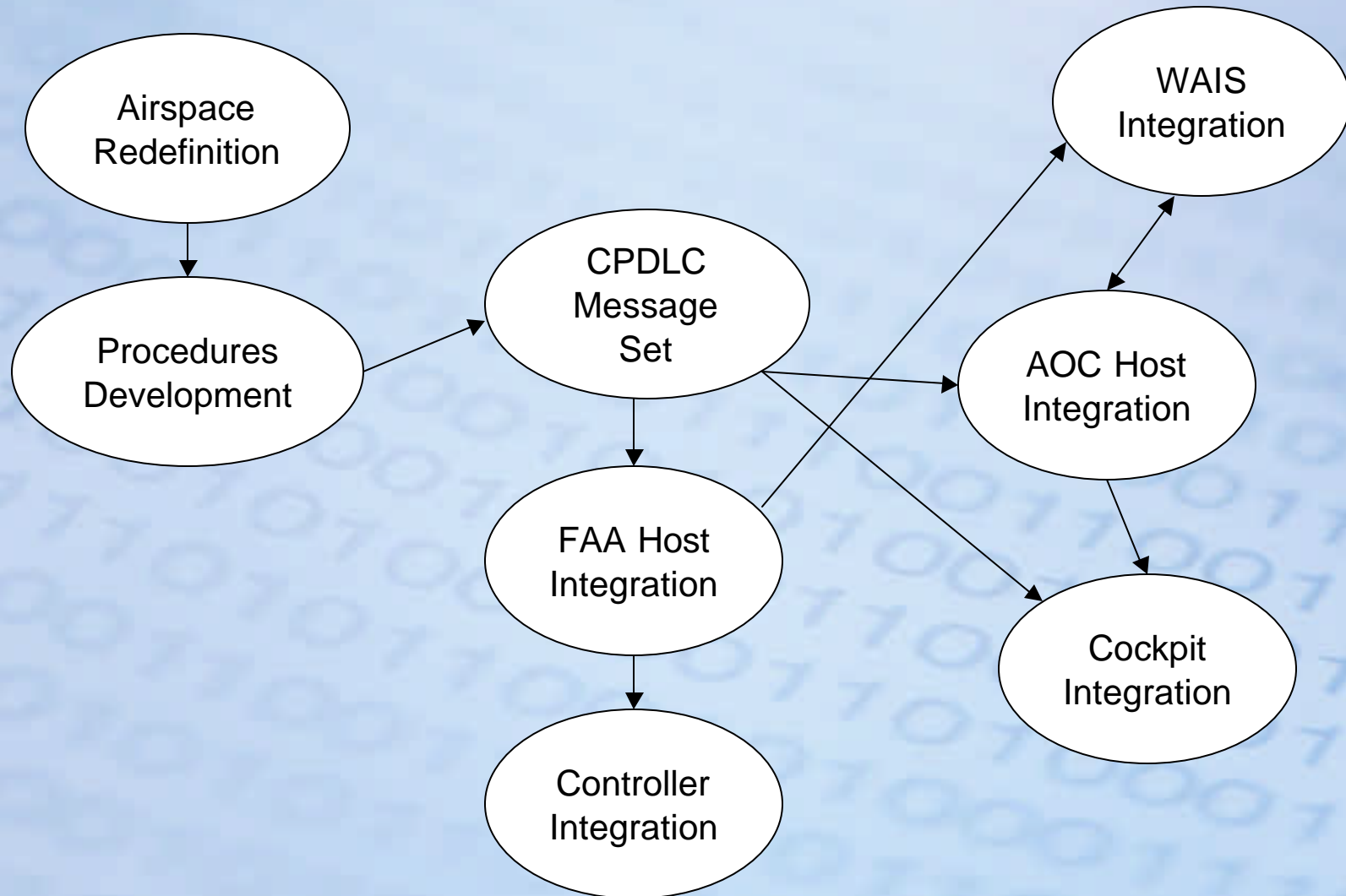
X – Relevant integration

\* - Integration accomplished in another project

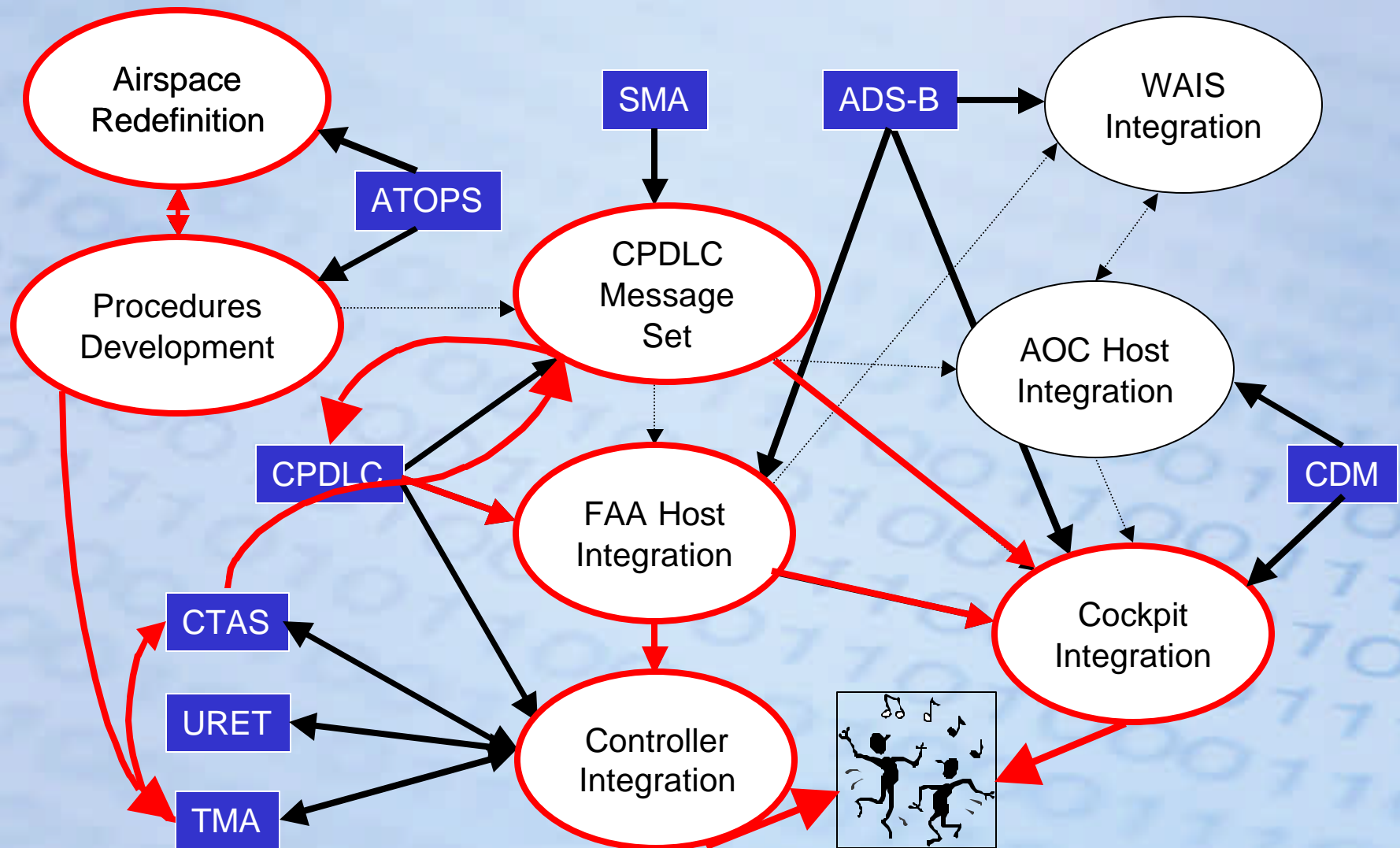
# **Integration of Multiple Projects**

- **Current projects will integrate CPDLC independently**
- **Project schedules are likely to conflict, causing project delays and cost**
- **Multiple data links are likely**
- **Ten year deployment typical**
- **Transition path needed**

# Functional Relationships



# Functional Relationships

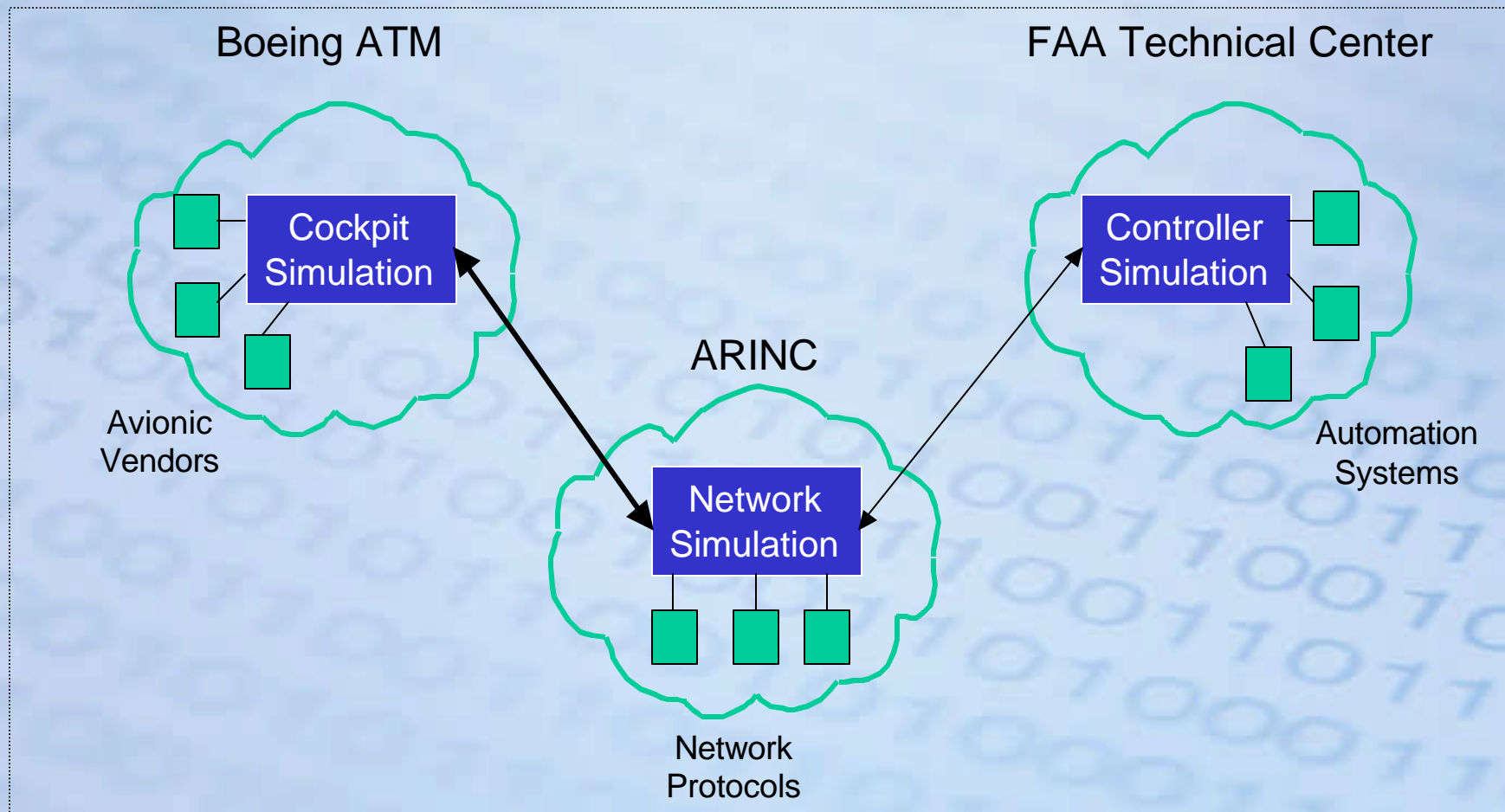


# What are we going to do?



- **Separate Programs**
- **Separate Budgets**
- **Integration Required**
- **End to End Testing**
- **Schedule Constraints**

# A Potential Solution – NASA Integration Facility



# Recommendations

- **A rigorous study of CPDLC integration should be conducted**
  - Should be extended to all NAS projects potentially affected
  - Should consider planned schedules
- **Methods for reducing the integration issues should be considered**
  - Integration facility
  - Analysis methods
  - Standards
- **Aircraft equipage limits need to be recognized**

**BACKUP**

# Functional Relationships

